Microfluidic Component Package

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OTHER INFORMATION

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BRIEF DESCRIPTION

The present invention describes a component package that enables a microfluidic device to be fixed to a Printed Circuit Board (PCB) or other substrate, and embedded within a larger microfluidic system.

TECHNOLOGY DESCRIPTION

Microfluidic systems are used for applications where small quantities of fluid need to be manipulated and controlled. A microfluidic component consists of a small device that is intended to be embedded within a microfluidic system. It typically contains one or more ports that allow the components to come into contact with fluid routed on a microfluidic layer, and perform a function that is useful to the operation of the microfluidic system. Microfluidic components may perform operations such as micro-pumps, micro-valves, micro-heaters, micro-electrodes, micro-sensors, etc.

A microfluidic component package (MFCP) allows a device to be readily integrated within a microfluidic system. Conventional microfluidic production approaches involve the production of capillary systems in polymer, glass or other materials using embossing or etch methods. These methods are efficient at producing microfluidic channels, but they are poor for integrating electronics, optics, and mechanical functions into the system. Usually, these non-fluidic parts are added as external components after the microfluidics have been produced. In some cases, attempts are made to include these functions during the manufacturing process of the microfluidic channels.

However, this results in a highly complex and expensive manufacturing process that is not suitable for large scale production. To embed the components within the larger microfluidic system, the components need to be connected with one or more microfluidic channels, and potentially electrical, optical, mechanical, or thermal connections.

Currently, there is no way to do this in a consistent manner that is compatible with large-scale manufacturing. The present invention discloses a Microfluidic Component Package (MFCP) that can produce a consistent interface between a small microfluidic device and a larger microfluidic system, while also allowing access to electrical, optical, mechanical, and thermal connections.

SUGGESTED USES

The present invention is applicable in medical or healthcare industries where an assay is to be performed on a small liquid sample such as blood or saliva.

FEATURES/BENEFITS

·Consistency – The invention improves consistency and ease of integrating electrical, optical, mechanical, and thermal connections within a microfluidic component package (MFCP)

·Readily integrated – The invention is readily integrated within a larger microfluidic system in a manner that is compatible with large-scale manufacturing

·Lower Cost – In most cases, cost will be reduced by using this invention.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11331663	05/17/2022	2016-768

RELATED CASES

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